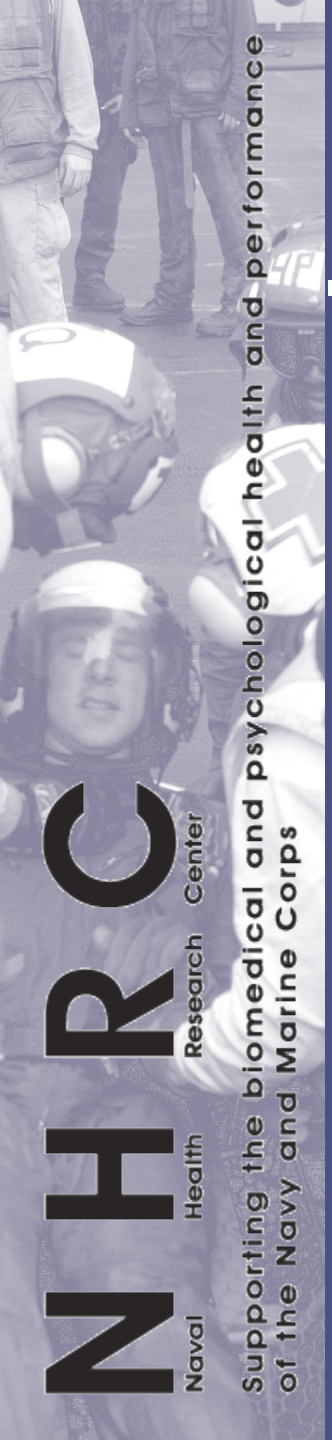
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INJURY PREVENTION

Behavioral Science and Epidemiology Program

Musculoskeletal Injury Epidemiology

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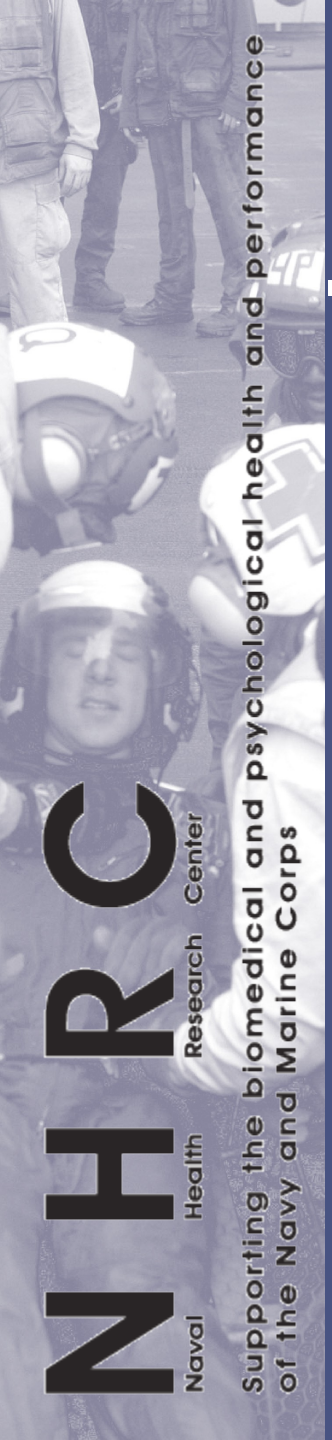
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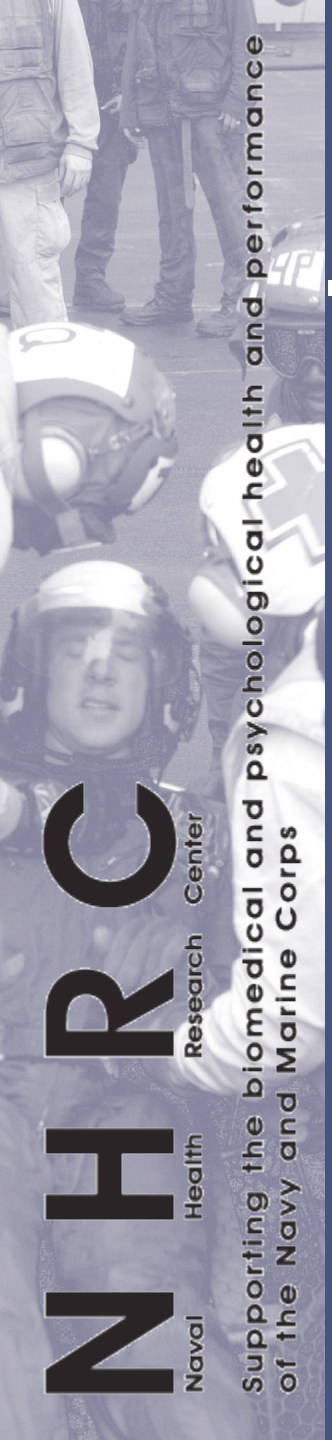
Collaborators

- San Diego State University
- University of California, San Diego
- Johns Hopkins University
- University of South Carolina
- University of Alabama, Birmingham
- JAYCOR, San Diego, CA
- Hadassah University, Israel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Musculoskeletal Injury Project, Capabilities

- Determine rates of injuries
- Develop predictive profiles of injury susceptibility
- Develop and evaluate interventions to reduce injuries

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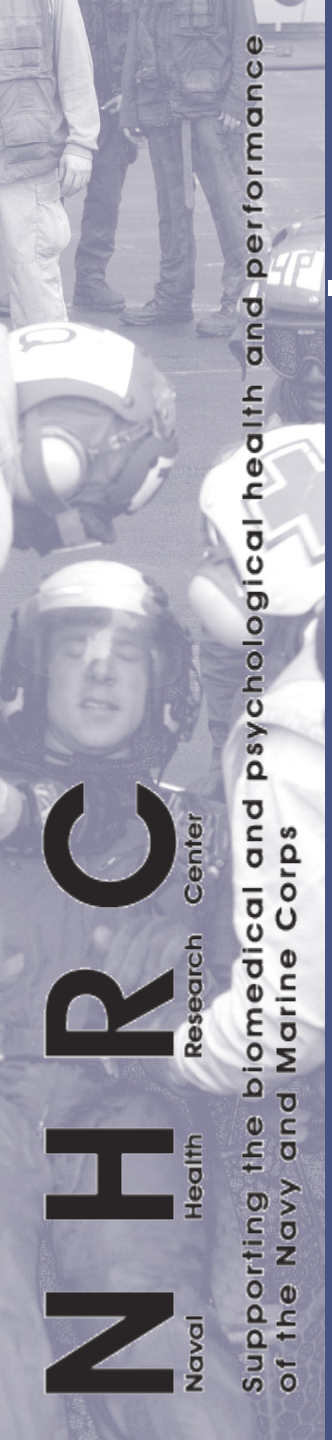
Musculoskeletal Injury Studies – Past and Present

MCRD SD: (Men)	Epidemiology of Overuse Injury (1993-98; 2001- Bone Structure Fitness Training Modifications Footwear Development & Evaluation
MCRD PI: (Women)	Epidemiology of Overuse Injury (1995-2000) Bone Structure Injury Susceptibility
OCS Quantico: (Women)	Outpatient Morbidity Epidemiology (1995- Predictive Profiles for Injury
NAVSPECWARCEN: (Men) BUD/S	Epidemiology of Overuse Injury (1994-97; 2002- Biomechanical Factors, Stress Fracture Reductior
NTC Great Lakes: (Men and Women)	Epidemiology of Injury and Illness (1995-2002) Injury Susceptibility Fitness Training and Health Promotion

New stock system infantry combat boot (1996-1997)



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Evaluation of a Modified Physical Fitness Conditioning Program for Female Marine Corps Recruit Training

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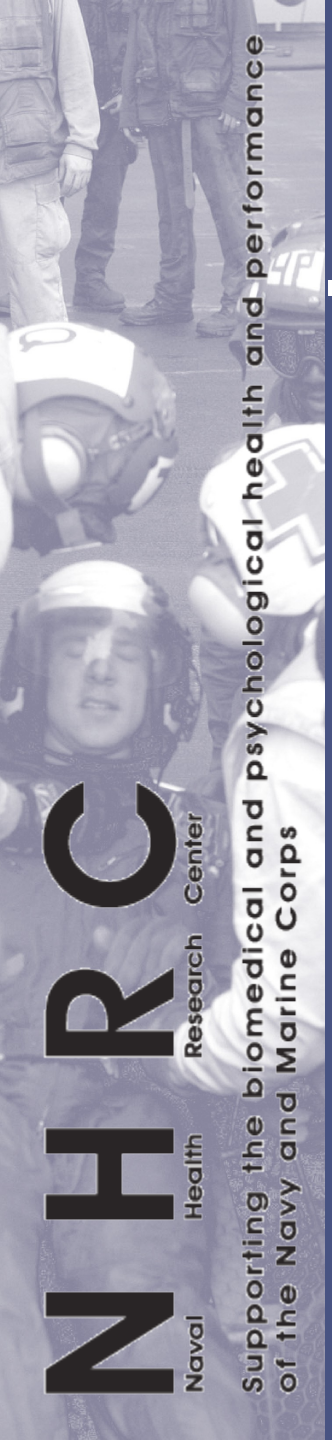
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Impact of Stress Fractures Among 2000 Female Marine Corps Recruits

	Injuries	Str
	Fx	
Incidence (5.2%)	1,020 (51%)	104
Referral to MRP (73%)	173 (17%)	76
Total Days in MRP	7,612	4,120

Fiscal Costs of Stress Fractures: $1,850,600

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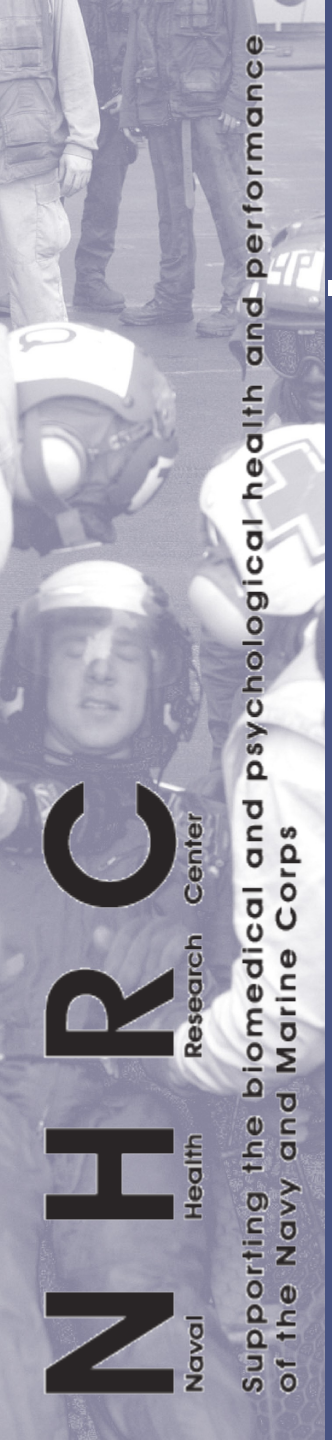
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Conclusions

The physical training recommendations to the female Marine Corps recruits' program of instruction, made by the 4th Battalion Commanding Officer and the Support Battalion Physical Fitness Advisor, significantly reduced the number of stress fractures and the overall injury rate while maintaining high-intensity physical activity.

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Impact of Injuries
MCRD San Diego

Fiscal

$16.5 Million

($5 Million StFx alone)

Readiness

53,600

lost training days

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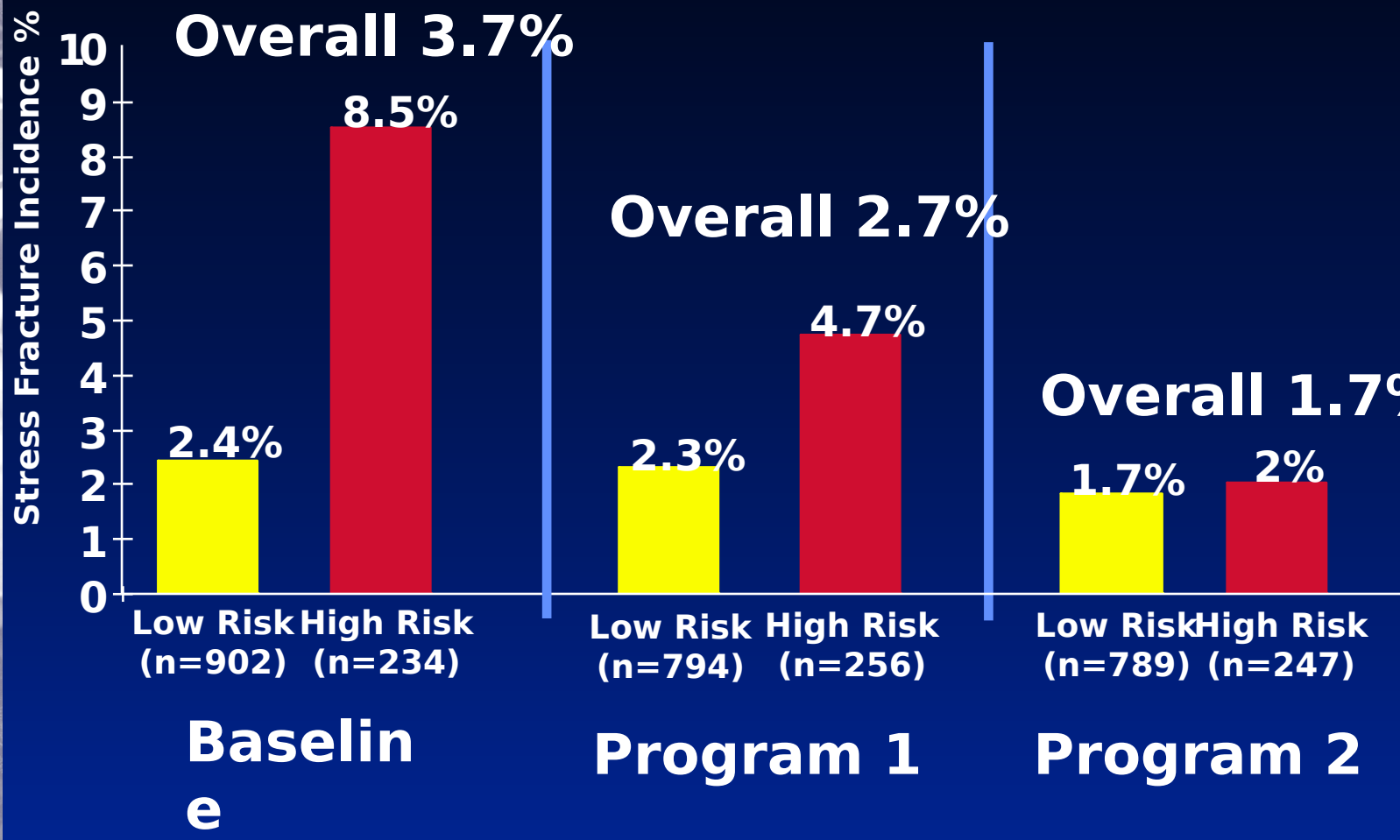
Stress Fracture Incidence by Injury Susceptibility Groups



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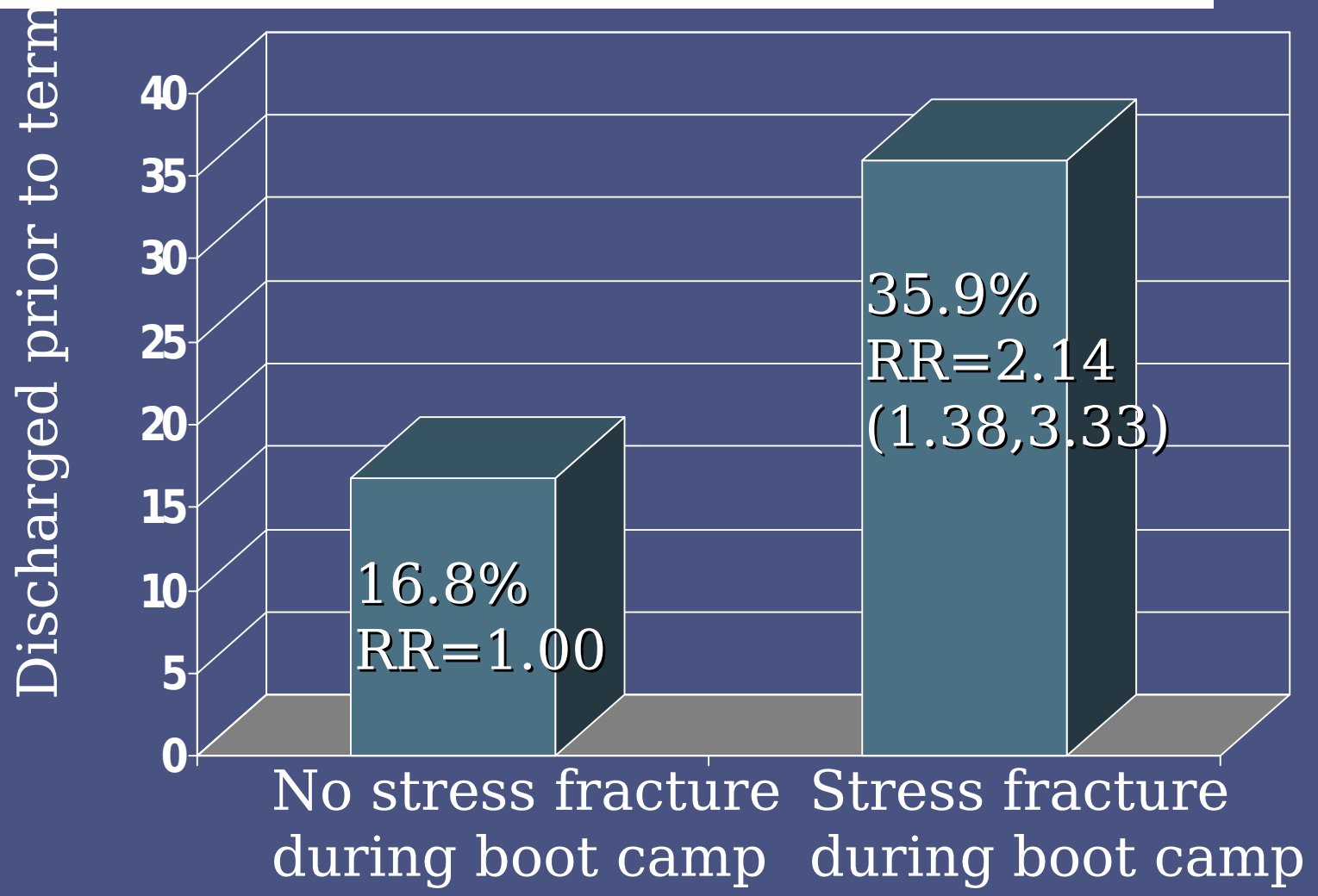
Early Discharge Associated with Injury during Recruit Training, USMC Male Recruits



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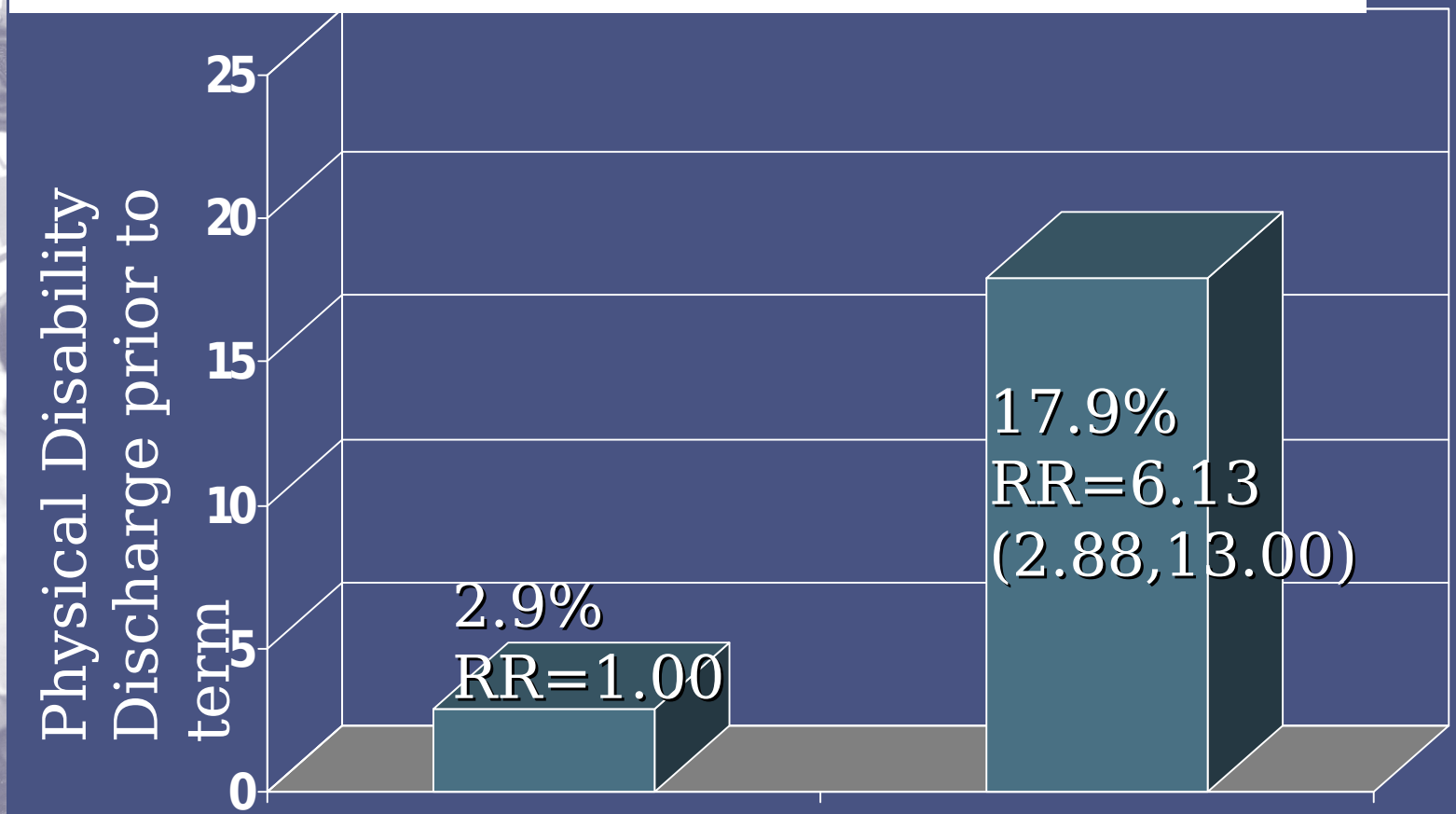

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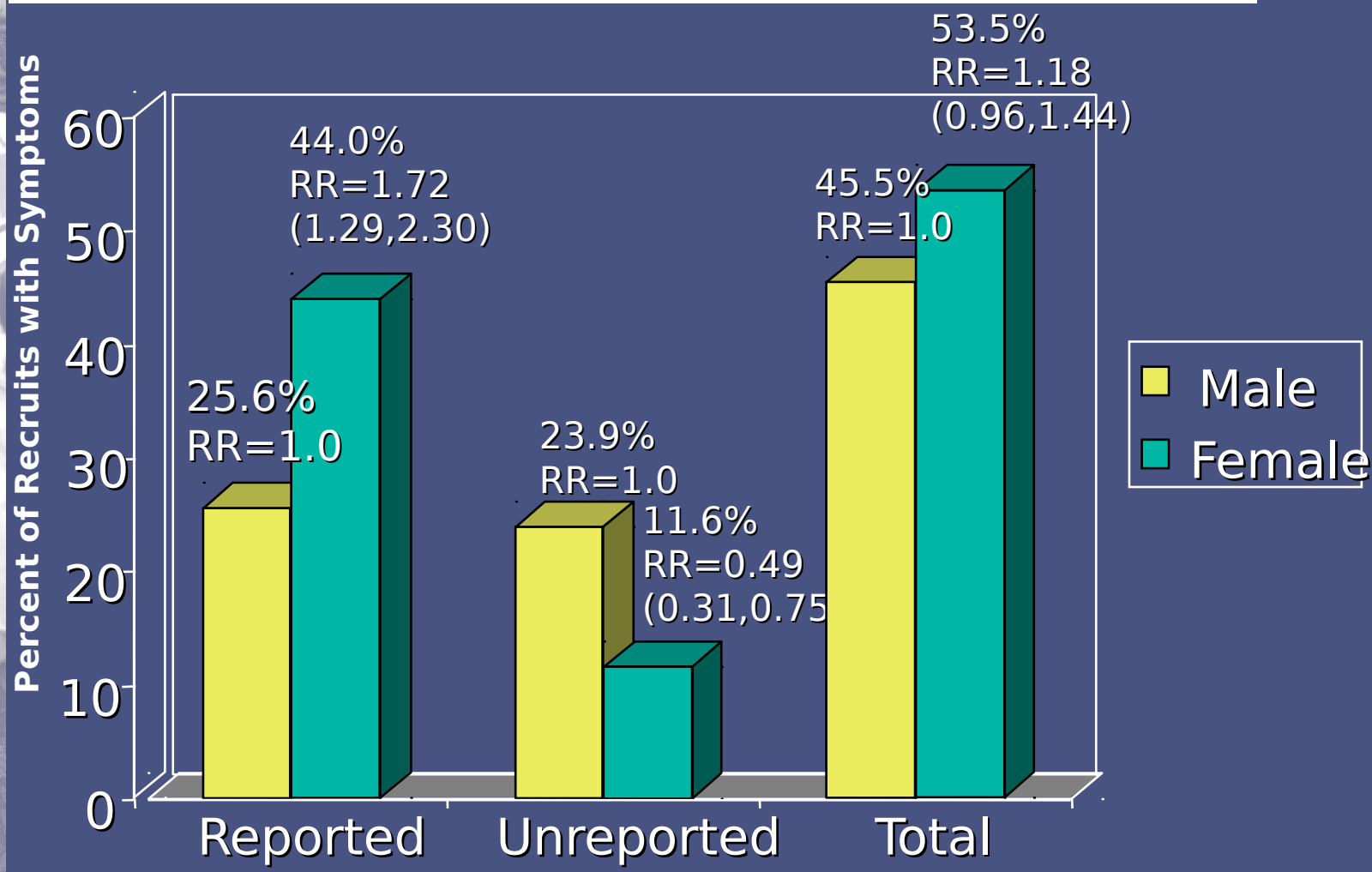
Gender Differences in Injury Symptom Reporting, U.S. Marine Corps Recruits



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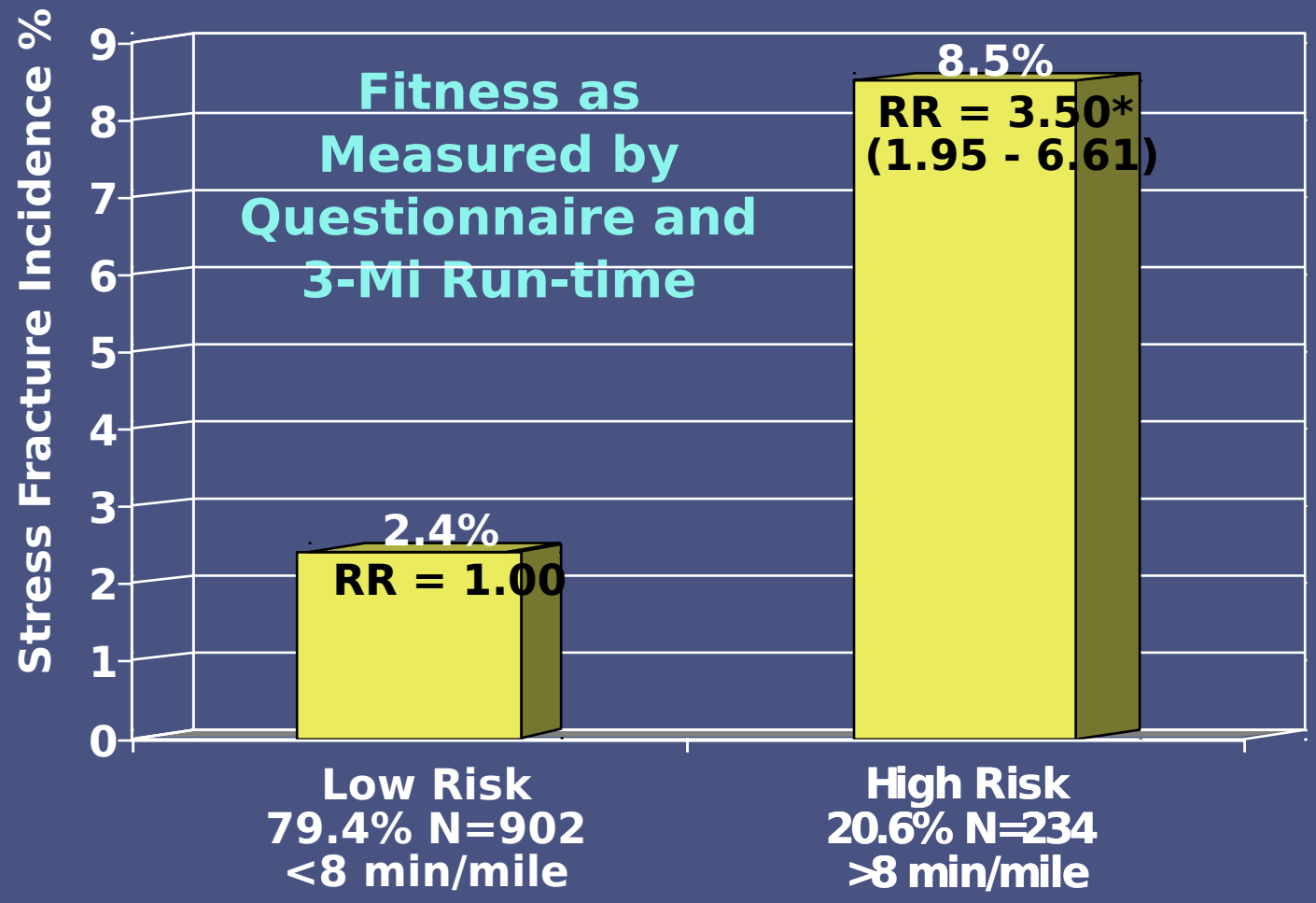
Results from Predictive Model for Stress Fracture, Male USMC Recruits



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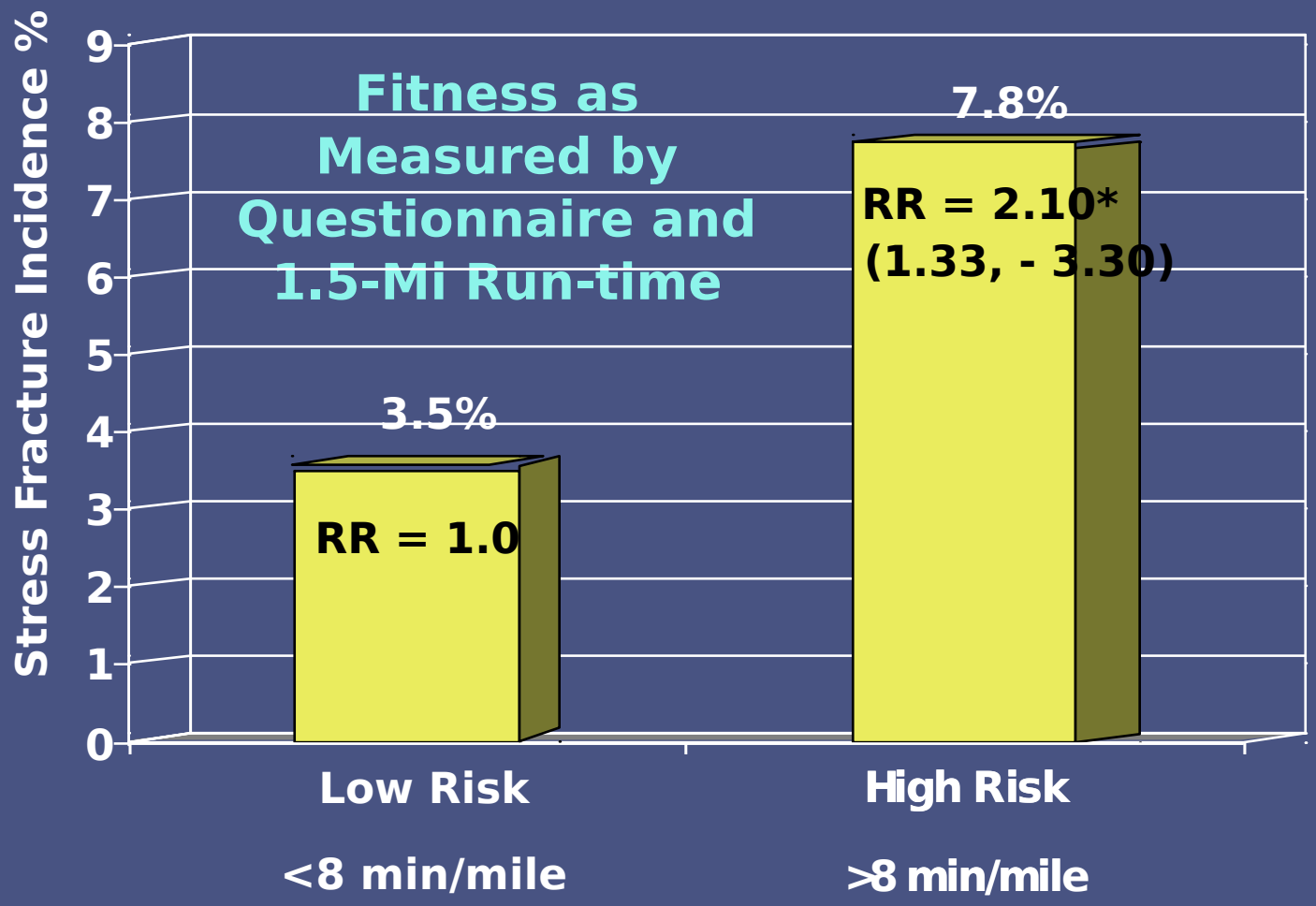
Results from Predictive Model for Stress Fracture, Female Marine Corps Recruits



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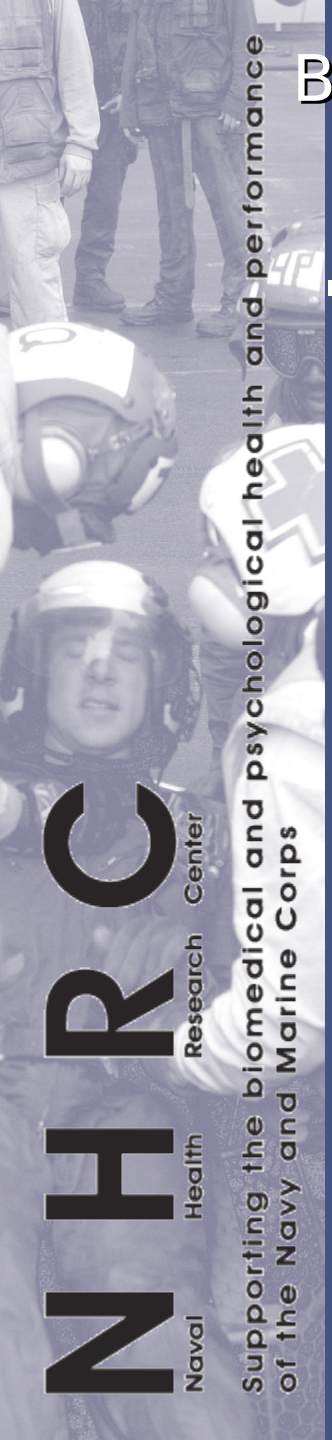

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Behavioral Science and Epidemiology Program
Musculoskeletal Injury Epidemiology
Published Injury Research

Running mileage, movement mileage, and fitness in male U.S. Navy recruits. Med Sci Sports Exerc 2001; 33:1033-1038.

Stress fracture in military recruits: gender differences in muscle and bone susceptibility factors. Bone 2000; 27:437-444

Military Training Related Injuries: Surveillance, Research, and Prevention. Am J Prev Med 2000; 18:54-63.

The association of blisters with musculoskeletal injuries in male Marine recruits. J Am Podiatr Med Assoc 2000; 90:194-198.

Gender differences in musculoskeletal injury rates: a function of symptom reporting? Med Sci Sports Exerc 1999; 31:1807-1812.

The effect of foot structure and range of motion on musculoskeletal overuse injuries. Am J Sports Med 1999; 27:585-593.

Epidemiology of illness and injury among U.S. Navy and Marine Corps

Use of simple measures of physical activity to predict stress fractures in young men undergoing a rigorous physical training program. Am J Epidemiology 1999; 149:236-242.

Epidemiological pattern of musculoskeletal injuries and physical training. Med Sci Sports Exerc 1999; 31:1176-1182.

Physical training program guidelines for U.S. Navy recruits: Preparing recruits for Battle Stations. NHRC TR No. 99-1A.

A physical training program to reduce musculoskeletal injuries in U.S. Marine Corps recruits. NHRC TR No. 97-2B 1997.

Biomechanical properties of infantry combat boot development. NHRC TR No. 97-26 1997.

Dual Energy X-Ray Absorptiometry Derived Structural Geometry for Stress Fracture Prediction in Male U.S. Marine Corps Recruits. J Bone Miner Res 1996; 11:645-653.

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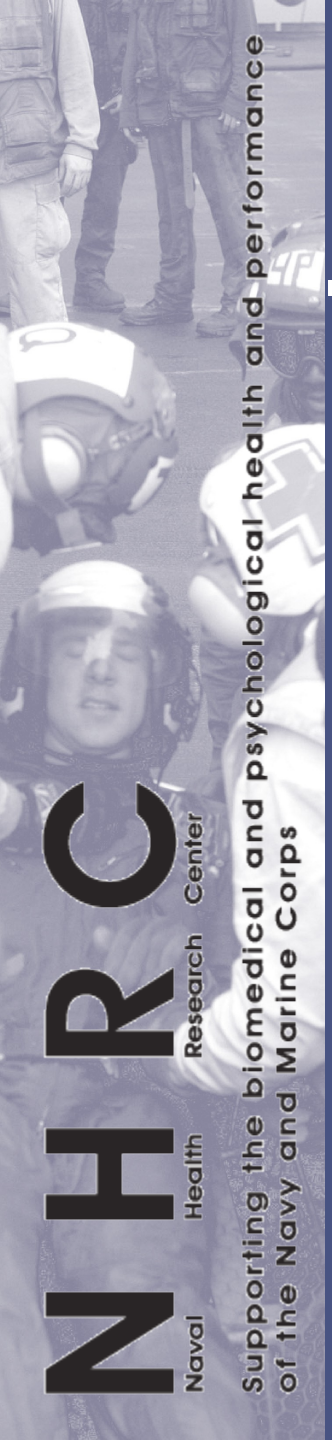
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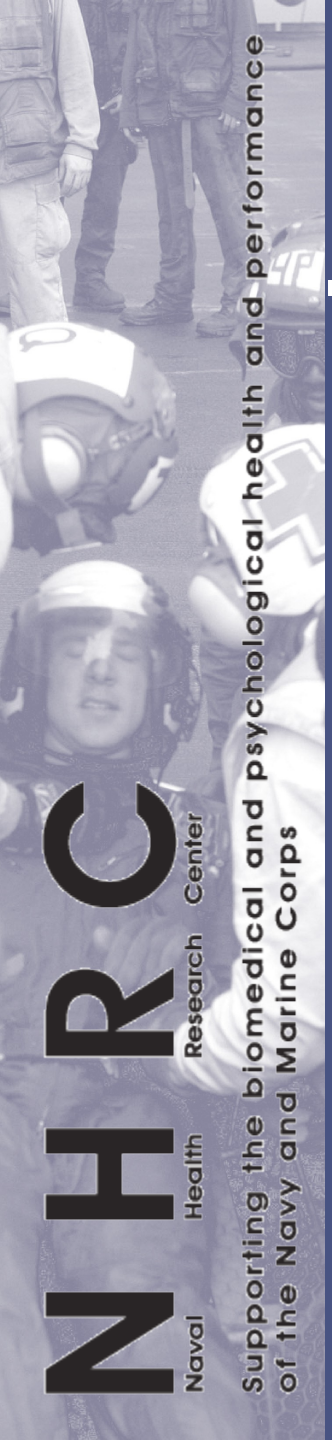
Future Work Units

- Efficacy of LED versus LLLT in the Treatment of Acute Inversion Ankle Sprains, 6.4 Proposal Submitted to the Bureau of Medicine and Surgery; Pending.

- A Prospective Study of the Effect of Short-Term Treatment with Risedronate on the Incidence of Stress Fracture Among Infantry Recruits and Navy Seals, Submitted to USAMRMC BAA for Bone Health and Military Medical Readiness; Collaborator: Hadassah University, Israel; Pending.

- Sports Medicine and Reconditioning Team (SMART) Clinics Evaluation: Step 1 - Current evaluation of all SMART clinics; Step 2 - Efficacy of SMART Clinics in Camp Lejeune, NC. Supported by the Deputy Chief, BuMed, Medical Operations Support.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Questions?

What can we do to help you?

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